

1. An amplifier module for attachment to a support structure of a base station in a wireless communications network, the module comprising:
- a substrate;
  - a heat-generating electrical component coupled to said substrate;
  - 5 a low-noise amplifier transistor coupled to said substrate and capable of generating heat; and
  - a thermoelectric cooler positioned proximate said substrate, said thermoelectric cooler having a cold side thermally coupled with said low-noise amplifier transistor, said cold side being cooled for extracting heat from said
  - 10 low-noise amplifier transistor, and said cold side being thermally isolated from said electrical component.

2. The amplifier module of claim 1 further comprising:  
a heat-generating filter thermally isolated from said cold side by a heat insulator.
3. The amplifier module of claim 2 wherein said heat insulator is an air gap.
4. The amplifier module of claim 1 wherein said substrate further comprises:  
a heat insulator separating said electrical component from said cold side.
5. The amplifier module of claim 4 wherein said substrate is formed from a material having a low thermal conductivity, and said heat insulator is a portion of said substrate separating said electrical component from said cold side.
6. The base station of claim 4 wherein said heat insulator is an air gap provided in said substrate between said electrical component and said cold side.
7. The amplifier module of claim 1 wherein said substrate further comprises:  
a thermally conductive element coupling said cold side in heat transfer communication with said low-noise amplifier transistor.
8. The amplifier module of claim 1 wherein said cold side is directly coupled in heat transfer communication with said low-noise amplifier transistor.

9. The amplifier module of claim 1 further comprising a heat-generating housing enclosing said substrate, said housing being thermally isolated from said cold side.
10. The amplifier module of claim 9 further comprising:  
a heat insulator separating said housing from said cold side.
11. The amplifier module of claim 10 wherein said heat insulator is an air gap between said housing and said cold side.

12. An amplifier module for attachment to a support structure for a base station in a wireless communications network, the module comprising:
- a housing capable of being mounted to said tower, said housing capable of generating heat;
  - 5 a low-noise amplifier transistor positioned inside said housing and capable of generating heat; and
  - a thermoelectric cooler positioned proximate said substrate, said thermoelectric cooler having a cold side thermally coupled with said low-noise amplifier transistor, said cold side being cooled for extracting heat from said
  - 10 low-noise amplifier transistor, and said cold side being thermally isolated from said housing.

13. The amplifier module of claim 12 wherein further comprising a heat insulator separating said housing from said cold side.

14. The amplifier module of claim 13 wherein said heat insulator is an air gap between said housing and said cold side.

15. A transceiver radio for a base station of a wireless communications network, comprising:

- a substrate;
- a power amplifier transistor coupled to said substrate and capable of

5 generating heat;

- a heat-generating electrical component coupled to said substrate; and
- a thermoelectric cooler positioned proximate said substrate, said

thermoelectric cooler having a cold side thermally coupled with said power amplifier transistor, said cold side being cooled for extracting heat from said

10 power amplifier transistor, and said cold side being thermally isolated from said electrical component.

16. The transceiver radio of claim 15 wherein said substrate further comprises:  
a heat insulator separating said electrical component from said cold side.
17. The transceiver radio of claim 16 wherein said substrate is formed from a material having a low thermal conductivity, and said heat insulator is a portion of said substrate separating said electrical component from said cold side.
18. The transceiver radio of claim 16 wherein said heat insulator is an air gap provided in said substrate between said electrical component and said cold side.
19. The transceiver radio of claim 15 wherein said substrate further comprises:  
a thermally conductive element coupling said cold side in heat transfer communication with said power amplifier transistor.
20. The transceiver radio of claim 15 wherein said cold side is directly coupled in heat transfer communication with said power amplifier transistor.